# *The Path to DoD Transformation*
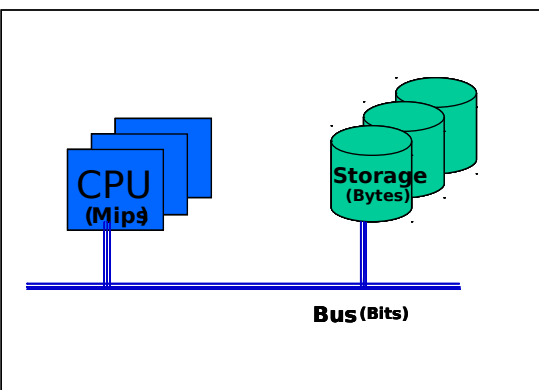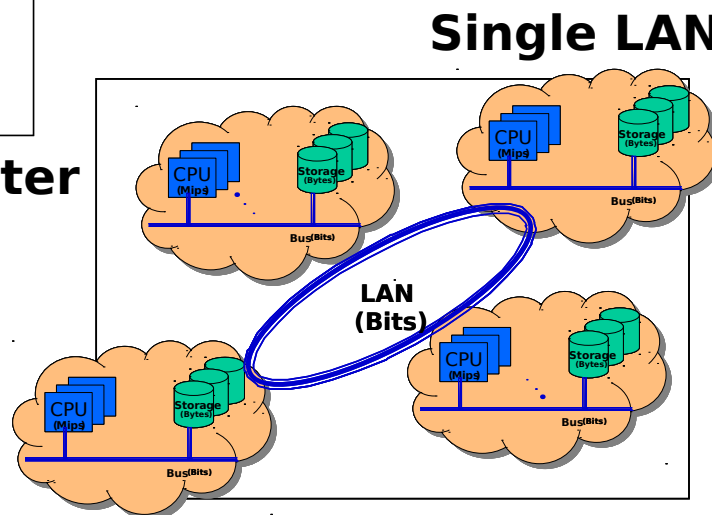
# COE and Software Services

Rob Walker

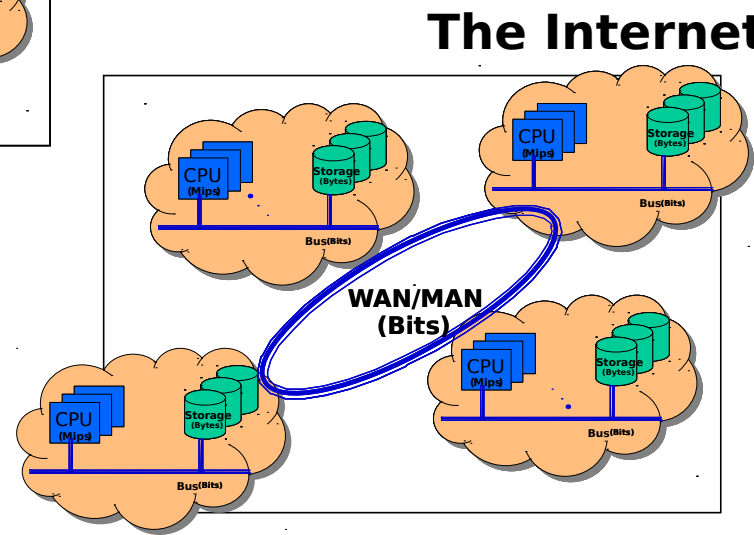COE Program Manager

walker2r@ncr.disa.mil, (703) 882-1182

# "System" Evolution
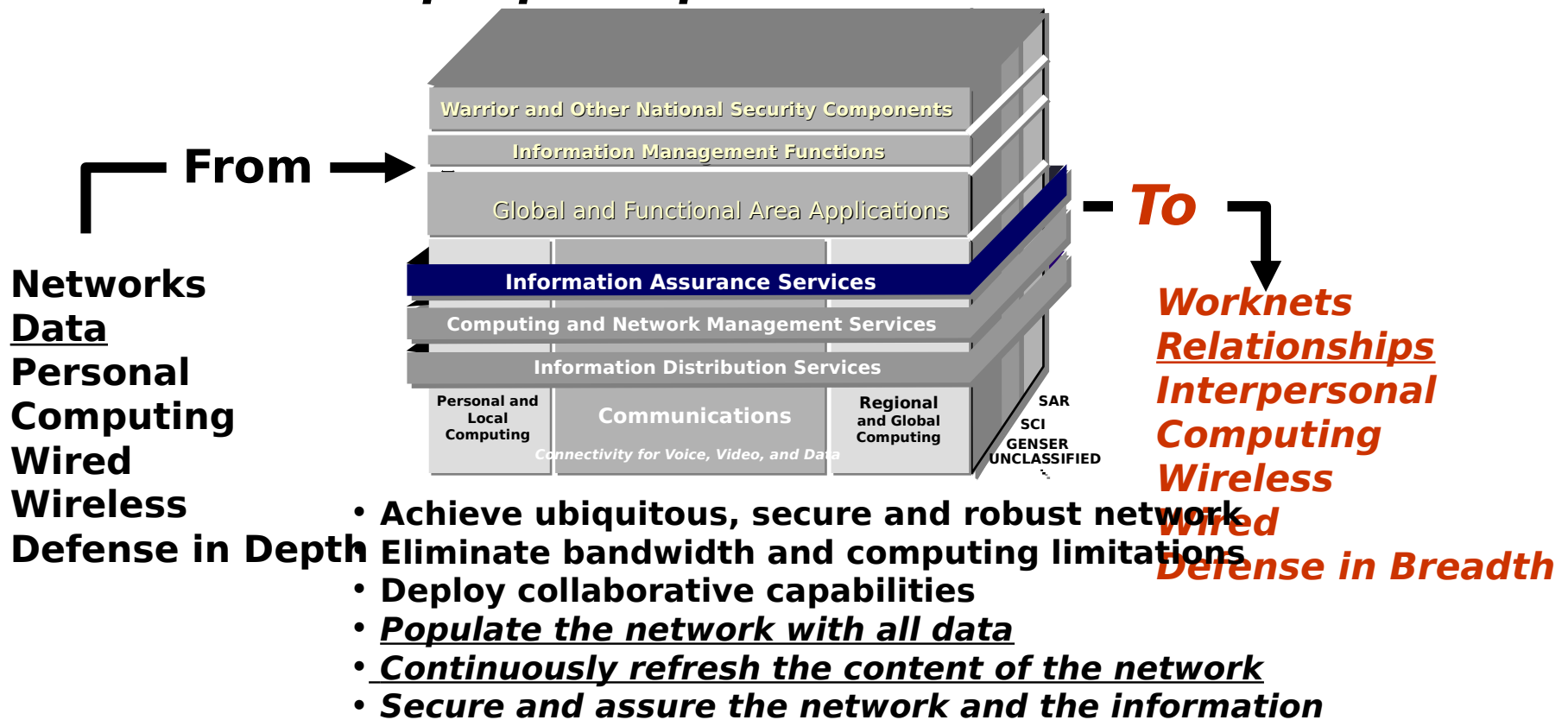


**Single Computer**

**Single LAN**

**The Internet**

# Transforming Technologies

*"Make information available on a network that people depend on and trust"*

**From**

Networks
**Data**
Personal
Computing
Wired
Wireless
Defense in Depth

Warrior and Other National Security Components

Information Management Functions

Global and Functional Area Applications

Information Assurance Services

Computing and Network Management Services

Information Distribution Services

| Personal and Local Computing | Communications | Regional and Global Computing |
|---|---|---|
| | *Connectivity for Voice, Video, and Data* | |

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**- *To***

*Worknets*
*Relationships*
*Interpersonal*
*Computing*
*Wireless*
*Wired*
*Defense in Breadth*

- Achieve ubiquitous, secure and robust network
- Eliminate bandwidth and computing limitations
- Deploy collaborative capabilities
- *Populate the network with all data*
- *Continuously refresh the content of the network*
- *Secure and assure the network and the information*

*Implementing the Global Information Grid Architecture*
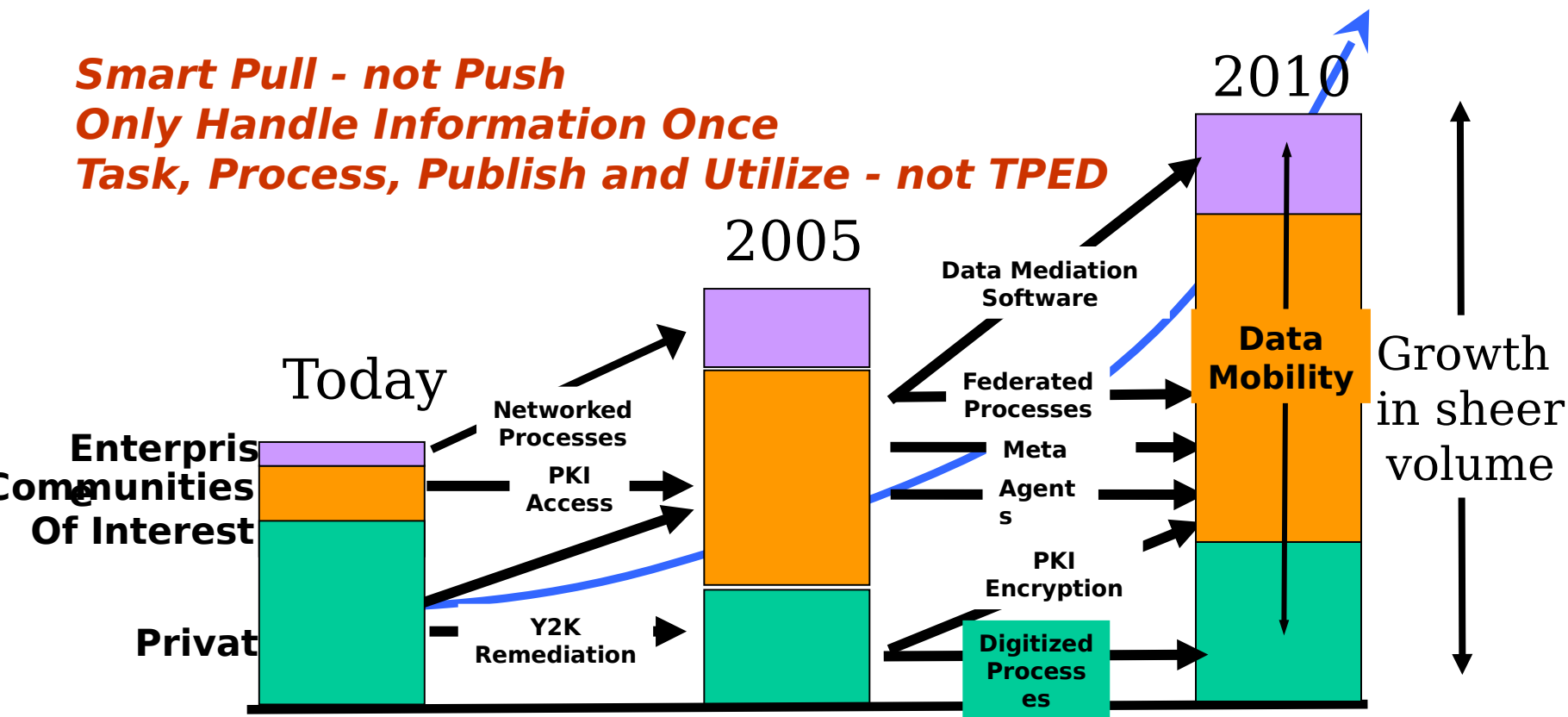
# GIG Architecture And Information

*Smart Pull - not Push*
*Only Handle Information Once*
*Task, Process, Publish and Utilize - not TPED*

2010

2005

Today

**Data Mediation Software**

**Enterprise**
**Communities**
**Of Interest**

**Networked Processes**

**PKI Access**

**Federated Processes**

**Meta**

**Agents**

**PKI Encryption**

**Data Mobility**

Growth in sheer volume

**Privat**

**Y2K Remediation**

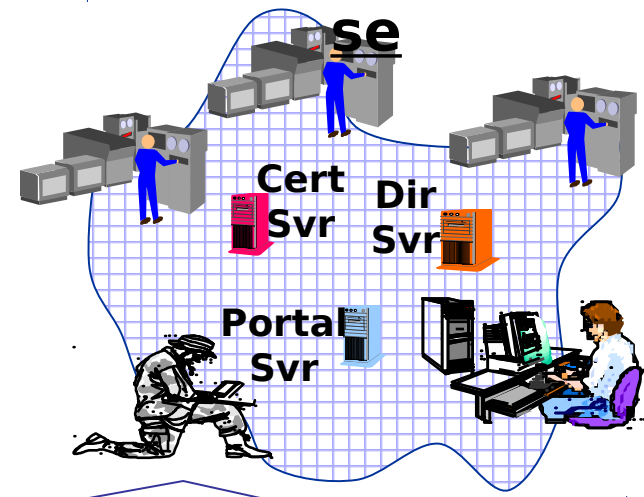**Digitized Process es**

*Information Is Data Elevated By Context*

# From Stovepipes to the GIG…

**Functional and Service**
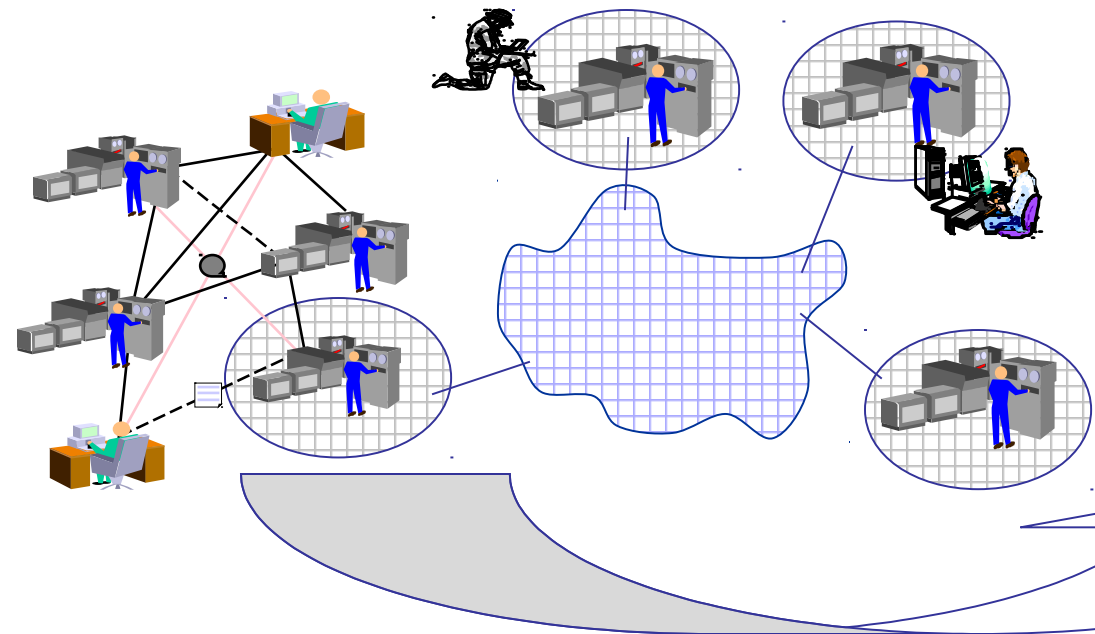
**Joint/Enterprise**

*Legacy and new Functional/Service Capabilities can "Plug-in" to the GIG as Domain Services*

**Cert Svr**

**Dir Svr**

**Portal Svr**

| Current Situation | Objective |
|---|---|
| **MIX OF STOVEPIPES WITH SOME NETWORK CONNECTIONS** | **GIG NETWORK SERVICES** |
| 1. *Redundant inconsistent processes and products with ineffective management and dissemination mechanisms* | 1. *Makes Functional, Service & System "Products" separable* |
| 2. *Uncoordinated or marginally coordinated requirements and development processes continuing in parallel* | 2. *Reveals opportunities to improve management & dissemination* |
| | 3. *Supports separate evolution* |

# From Systems to Capabilities

**(Notional)**

**Targeting**

Domain services

Today: Systems with <u>Targeting Applications</u>

GCCS

ABCS

GCCS-M

TBMCS

**Track**

**Readiness**

**Distribution**

**Fusion**

**Discovery**

**Persistence**

Enterprise services

Key:

**Capability**
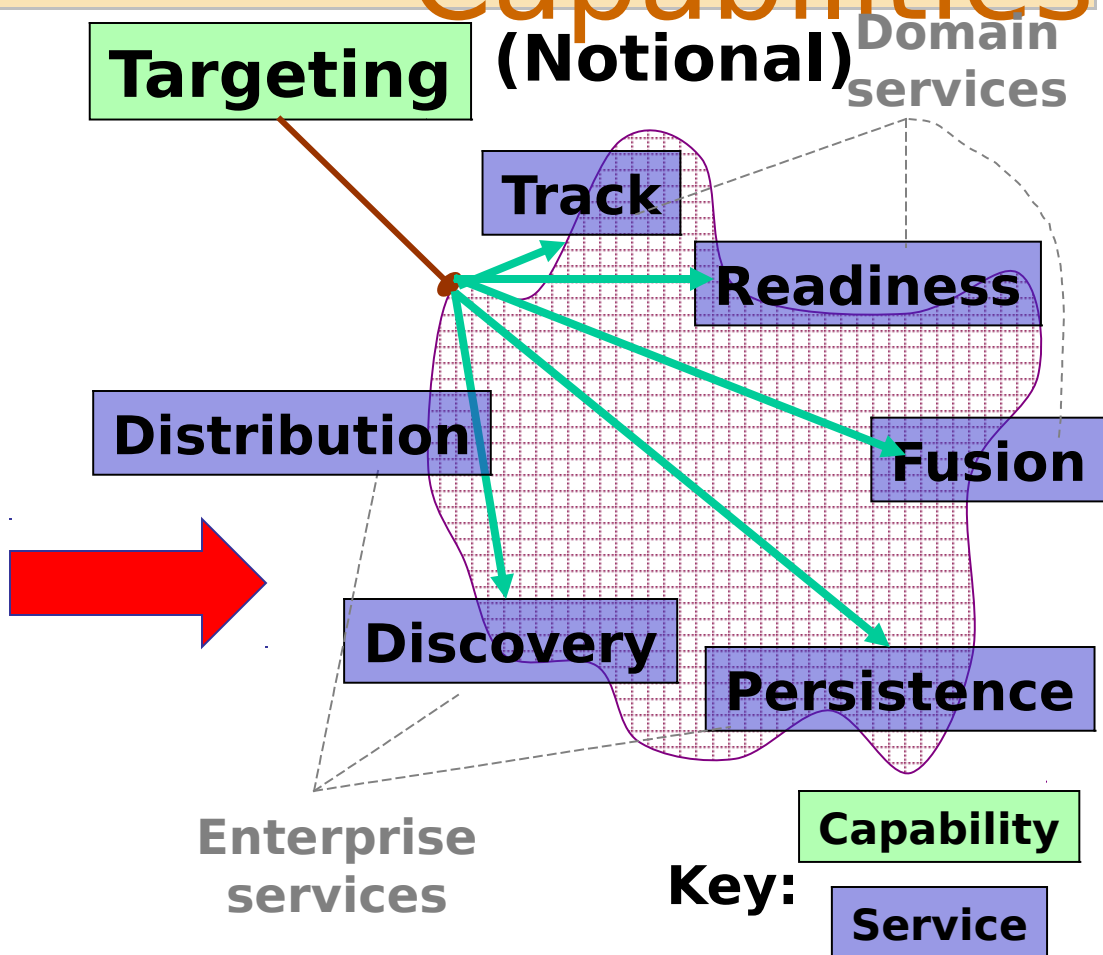
**Service**

*Capability discovers and uses common services*

# Enabling the GIG: Common Computing Services

- Provide the context for transforming data to information
- Smart, secure, <u>adaptive</u> processing & storage components, that respond to clients' resources & requirements
- Standardize host security approaches and configuration
- Use proactive monitoring and <u>dynamic allocation</u> mechanisms to deliver when and where needed
- Guaranteed to "behave" properly on the network
  - Contracts with Networking Services to Meet SLAs
  - Hides changes in network infrastructure from Enterprise Services, Applications, and Data Sources
- <u>"Plug-n-Play" capabilities</u>
  - Offer or get components based on best value procurement, existing CS support infrastructures & knowledge

# Enabling the GIG: Common Enterprise Services

- Smart, secure <u>adaptive</u> service components, that respond to clients' resources & requirements
- <u>Tailorable</u> based on:
  - Platforms (thin to thick)
  - Available comms/bandwidth (hi to low)
  - Required response times (fast-to-slower)
- Uses <u>dynamic discovery</u> mechanisms to deliver information
- Guaranteed to "behave" properly on network and computing services
  - Contracts with Computing Services to Meet SLAs
  - Hides changes in network & computing infrastructure from Applications & Data Sources
- <u>"Plug-n-Play" capabilities</u>
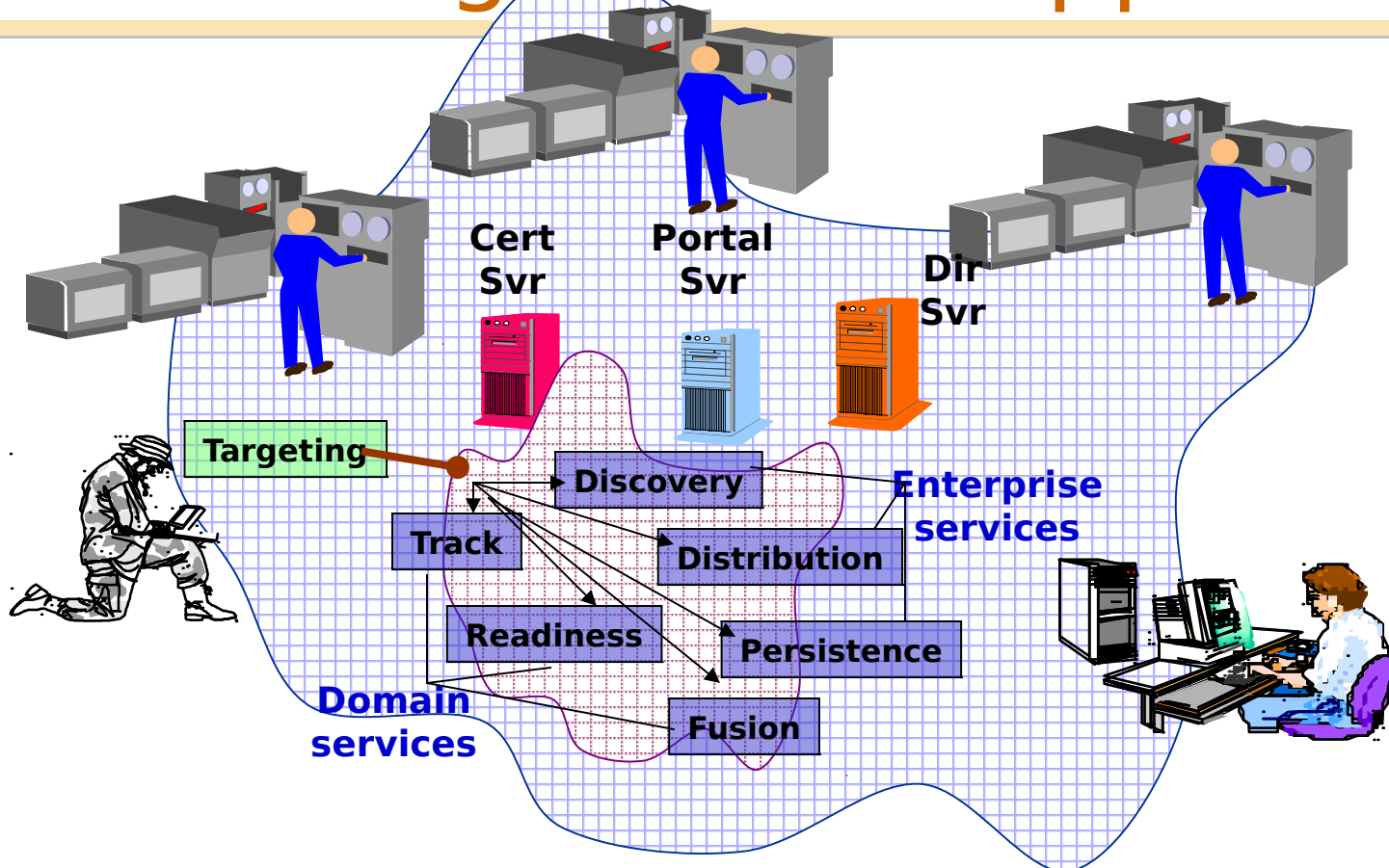  - Offer or get services by plugging into the computing substrate

# Enabling the GIG: Service Based Architecture

- Services are contractually defined behavior:
  - Can be provided by any technology that satisfies the contract
  - For use by any component
  - Based solely on the SLA
  - Appropriate expert community agrees upon the capabilities and manages the interfaces
  - An implementation can replace another meeting the same SLA.
- Decouples "system" re-baselining and re-accreditation from support component upgrades
- Helps overcome complexity
  - Decomposes problem into addressable issues
  - Hides complexity from dependent components
  - Provides environment where components plug-and-play

# Creating Domain Applications

**Cert Svr**

**Portal Svr**

**Dir Svr**

**Targeting**

**Discovery**

**Track**

**Distribution**

**Enterprise services**

**Readiness**

**Persistence**

**Domain services**

**Fusion**

**(Proposed) Objective Domain Applications & Data Sources**
- *Community of Interest (Domain) Services & Functionality*
- *Secure, Interoperable Plug-n-Play Data Sources and Applications based on reusable components*

# Roles and Responsibilities

- DISA & Service Providers:
  - Establishes 1st version of the GIG by
    - **Providing initial set of common enterprise services within C2 community**
    - **Providing initial set of computing and storage platforms and services**
    - **Providing initial set of network services**
  - Monitors market activity within GIG v1
    - **Tunes next version development plan to capitalize on market forces**
- Builders of Capabilities:
  - Provide applications and data reflecting their deep expertise in communities of interest (domains)
  - Use Common Enterprise Services as means to share more specialized applications and data
  - Leverage DoD-wide investments and O&M expertise
  - Improve DoD Security Posture through Use of Common Components
  - Widely deploy and reuse common services

# Transform Mechanism for Today's C2 Systems

- Common Operating System Base (COE)
- Ready-made customer base & technical coordination venues
- Proven, collaborative technical process for dissolving stovepipes
- Proof that common services can work
- Market share to allow leveraging thousands of seats
- Interoperability guidance and mechanisms (Deployed Standards)
- Technology building blocks to "jumpstart" the GIG
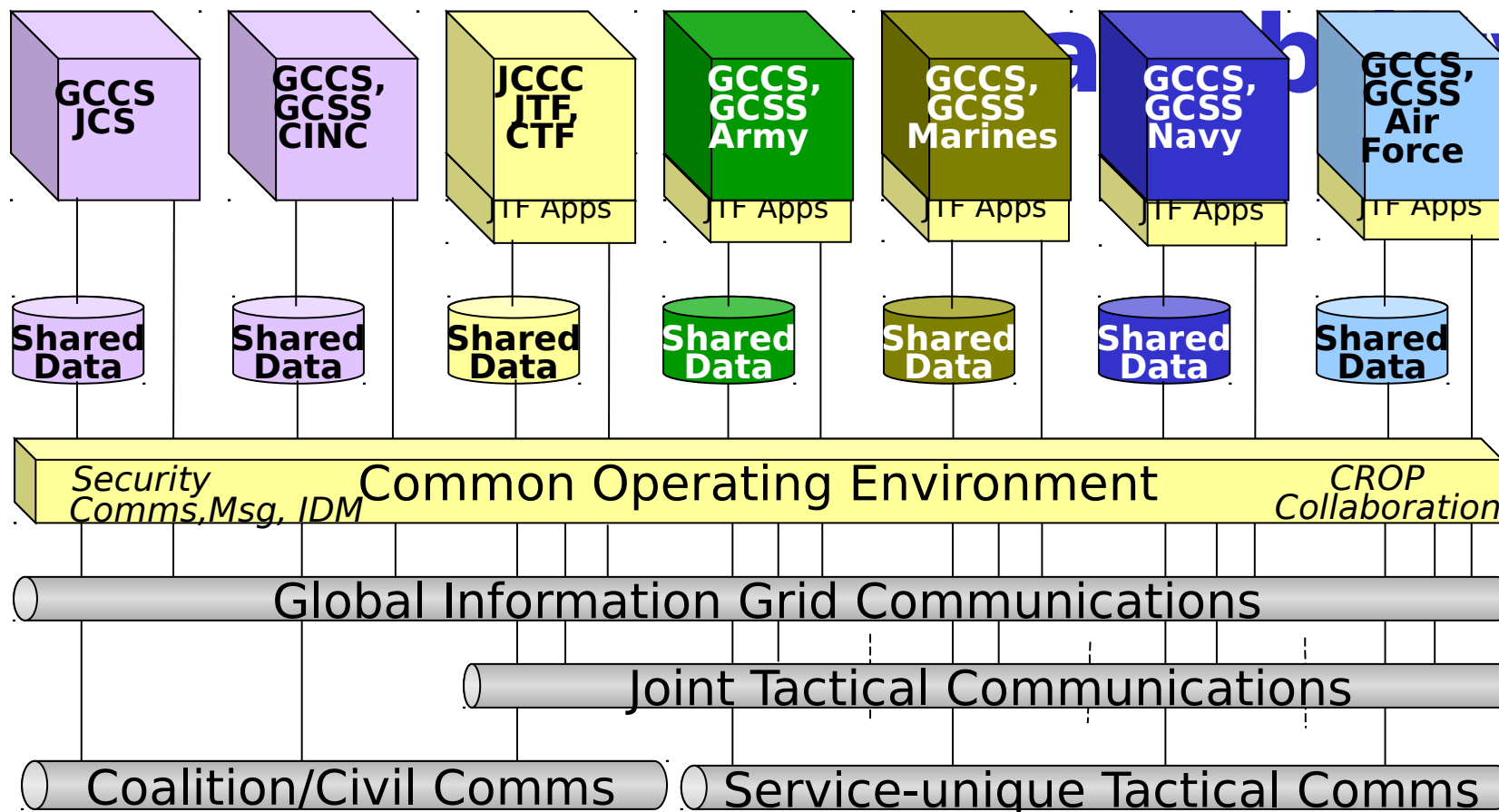


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# COE-BASED SYSTEMS

125

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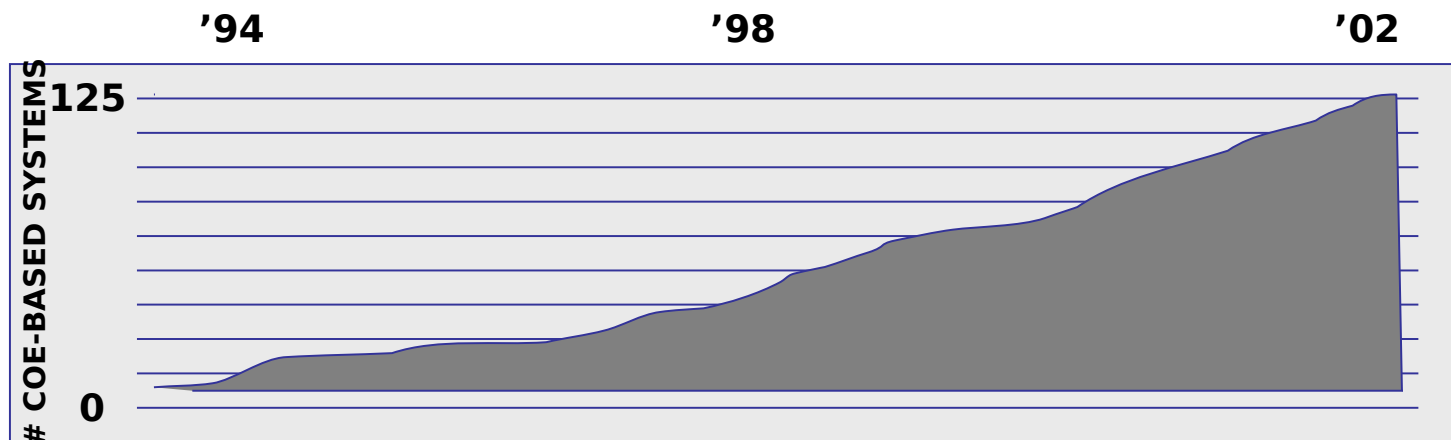
# Summary

- DoD moving aggressively from platform-centric to network-centric
- Community processes, market-driven approaches, and customer base already in place
- Department Wide Benefits – provides enterprise context for aggressive action by programs.

# Notion of a Joint Command and Control Capability

| GCCS JCS | GCCS, GCSS CINC | JCCC JTF, CTF | GCCS, GCSS Army | GCCS, GCSS Marines | GCCS, GCSS Navy | GCCS, GCSS Air Force |
|----------|-----------------|---------------|-----------------|--------------------|-----------------|---------------------|
| | | JTF Apps | JTF Apps | JTF Apps | JTF Apps | JTF Apps |

Shared Data — Shared Data — Shared Data — Shared Data — Shared Data — Shared Data — Shared Data

**Common Operating Environment**
*Security Comms,Msg, IDM*          *CROP Collaboration*

**Global Information Grid Communications**

**Joint Tactical Communications**

**Coalition/Civil Comms**     **Service-unique Tactical Comms**

# Extending the JCCC from Operational to Tactical

| Level | Requirement | Today | "Visions" |
|---|---|---|---|

**NCA** — Global Situation Awareness, ISR, Targeting — *Nat'l ISR*

**CINC** — Crisis & COA Assessment, ISR, Targeting, Force Deployment/Sustainment — **COP**

**JTF/JAOC** — Battle Management, ISR, Targeting, Joint Target Coord — **CTP**

**Component (AOC/SOC)** — Consolidated Component Picture, Battle Management — *Object mgmt*

**Units (CP/TALON/BCC)** — Single Unit Integrated Picture, Combat Direction — *Object mgmt*

**Warrior/ Shooter** — Weapon-specific display, Fire Control — **Tactical Data Links** — *Sensor / shooter*

**COE**

*Joint Command and Control Capability (Common Maritime, Ground, Air Pictures)*

The director, Defense Information Systems Agency, in addition to the
responsibilities specified in paragraph 5.7, shall: ...

5.82   Coordinate and maintain in conjunction with the CINCs, services
and agencies the COE, for use by command and control (C2) combat
support,combat service support, and intelligence information systems
directly supporting the Joint Task Force (JTF) and commands.

5.83   In conjunction with the CINCs, services and agencies evolve the
common operating environment to meet the enterprise wide requirements
as defined by the Global Information Grid Architecture